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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/505,445

06/03/2005

Helmut Matthias Simonis

CISCP900

8271

26541

7590

10/13/2009

Cindy S. Kaplan

P.O. BOX 2448

SARATOGA, CA 95070

EXAMINER

AFOLABI, MARK O

ART UNIT

PAPER NUMBER

2454

MAIL DATE

DELIVERY MODE

10/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/505,445	Applicant(s) SIMONIS, HELMUT MATTHIAS	
	Examiner MARK O. AFOLABI	Art Unit 2454	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-12,15-18 and 20-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-12,15-18 and 20-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This communication is considered fully responsive to the Application No. 10/505,445 filed on 06/20/2005. The amendment presented on 20 July 2009, which provides amendment to claims 1, 12, 15 and 18 is hereby noted, furthermore, claims 3, 13-14 and 19 have been cancelled and claims 20-23 are newly introduced. Claims 1, 2, 4-12, 15-18 and 20-23 remain pending and have been examined.

Continued Examination under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 20, 2009 has been entered.

Claim Rejections - 35 USC S 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action: (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 2, 4-5, 7-11, 15-17 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gary MacIsaac (US 2004/0257999 A1) (hereafter **MacIsaac**) in view of Atsushi **Iwata** (US 7,047,316 B2) (hereafter **Iwata**).

Regarding claim 1, a method of estimating traffic values or intervals in a communications network, the network comprising a plurality of nodes being interconnected by links, the method comprising the steps of

MacIsaac teaches,

(b) obtaining network data relating to the network topology (i.e., Fig. 1, 'Network-Includes data links connecting a number of network devices such as routers, bridges, multi-port bridges, switches, hubs, etc') and network behavior (e.g., a connection to the network for receiving data traffic, a computer connected to the connection for analyzing the data traffic and analysis means

associated with the computer for obtaining characteristics of the data traffic, [0018] and [0090]), said network data comprising end-to-end paths in the network (e.g., first communication link **6** connected to client computer **4** and a second communication link **7** connected to some other networked device in the network 1, [0040] and [0018], MacIsaac); and

(c) estimating the effect of a modification of said communications network or its behavior (e.g., communication link, 0040 and 0077] by calculating traffic information (e.g., statistical information about the network traffic, 0046) between a selected first (e.g., first link, [0040]) and a selected second node (e.g., second link, [0040]) of said network using said input data [0046].

But, **MacIsaac does not explicitly teach** the underlined limitation of claim1, obtaining traffic data through said nodes or links as input data comprising traffic measurement for said links obtained from one or more of the nodes in the network

However, **Iwata teaches** (a) obtaining traffic data through said nodes or links as input data comprising traffic measurement for said links obtained from one or more of the nodes in the network (e.g., a link state routing device of a node in a network composed of a plurality of nodes and links, col. 2, lines 51-65)

It would have been obvious to one of ordinary skill in the art at the time invention was made, given the suggestions of **MacIsaac and Fielscher** to use measurement for the said links obtained from one or more of the nodes in the network thereby making use of the optimal path using the calculated or the topology information and quality of service information of the entire network, which are obtained by exchanging route information including link or nodal topology information between nodes, Col. 1, lines 7-14, Iwata.

Regarding claim 2, wherein said traffic information is a cumulated traffic [0069], MacIsaac and col. 4, lines 17-35, Iwata.

Regarding claim 4, wherein said modification of said network or network behaviour comprises one or more of: a modification [e.g., disable link, 0077, MacIsaac] of the network topology (e.g., Link topology of Fig. 3F, Iwata), a modified routing algorithm parameter, a modified traffic engineering constraint and/or a modified traffic load [0076 - 0081], MacIsaac.

Regarding claim 5, comprising the step of correcting said input traffic data if inconsistencies are detected (e.g., value ... corrected to include all data in link 6 by adding to the value, [0067], MacIsaac).

Regarding claim 7, comprising evaluating the impact of the network or network behaviour modification from the calculated traffic information [0076], MacIsaac and Fig. 3F of Iwata.

Regarding claim 8, repeating step (c) for different pairs (e.g., establishing ... connections with one another, 0036], MacIsaac) of said first and second nodes (e.g., first and second link, [0040]) corresponding to different modifications [0040 and 0045], MacIsaac).

Regarding claim 9, comprising the step of selecting (e.g., method 20, comprise a number of steps, 0045, MacIsaac), according to predefined criteria [i.e., instruction, [0045], MacIsaac] one or more candidates for modifying said communications network corresponding to one or more of said modifications [0045 and Fig. 4], MacIsaac and Figs. 3F and 3G, Iwata.

Regarding claim 10, comprising the step of calculating a detailed analysis of traffic values or traffic intervals for one or more of the selected candidates [0046], MacIsaac.

Regarding claim 11, wherein said traffic values or intervals are calculating using a traffic flow model being based on [0046], MacIsaac

(a) traffic data measurements through said nodes and links as input (e.g., a link state routing device of a node in a network composed of a plurality of nodes and links, col. 2, lines 51-65, Iwata); and

(b) a plurality of constraints (e.g., "imposing a packet filtering rule", [0046], MacIsaac) describing network topology and behaviour [0076], MacIsaac.

Regarding claim 15, comprises a method of modifying a communications network, which is substantially the same steps discussed by each respective step in the method of claim 1, thereby same rationale of rejection is applicable

Regarding claim 16, this claim comprises an apparatus for calculating traffic values in a communications network, which is substantially the same steps discussed by each

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respective step in the method of claim 1, thereby same rationale of rejection is applicable

Regarding claim 17, this claim comprises a network management system for managing a network, which is substantially the same steps discussed by each respective step in the method of claim 1, thereby same rationale of rejection is applicable.

Regarding claim 21, wherein said network data further comprises router (e.g., The networked devices may be organized into sub-networks and may include, but are not limited to, routers, bridges, [0033], MacIsaac) and routing information (e.g., first link can be detected with no changes necessary to the routing or switching process, [0088], MacIsaac).

Regarding claim 22, wherein estimating the effect of a modification comprises utilizing cumulative flow analysis (e.g., the utilization of the first link 6 is calculated. This may be done by summing the number of bits carried by link 6 over a suitable time interval and dividing by a capacity of link 6, [0069], MacIsaac).

Regarding claim 23, further comprising generating a traffic flow model utilizing said traffic (e.g., col. 10, lines 19-54, Iwata) and network data and utilizing said traffic flow model to estimate the effect of said modification (e.g., item E2 of Fig. 11 and Fig. 18C, MacIsaac).

6. Claims 6, 12, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **MacIsaac** (US 2004/0257999 A1) and **Iwata** (US 7,047,316 B2) in view of **Fielscher** et al. (US 2003/0058798 A1) (hereafter **Fielscher**).

Regarding claim 6, wherein said traffic information is calculated using linear constraints in a traffic flow model.

MacIsaac and Iwata teach all the limitations of claim 1, such as obtaining traffic data through said nodes and/or links as input data [0040], etc.

But, **MacIsaac and Iwata does not explicitly teach** traffic information is been calculated using linear constraints.

However, **Fielscher teaches** network traffic information is calculated using linear constraints in a traffic flow model [linear program [constraint] may be used to model how to route traffic in the Internet] [0052].

Thus, it would have been obvious to one of ordinary skill in the art to modify **MacIsaac and Iwata** teaching of calculating traffic values or intervals in a communications network, with **Fielscher's** technique, it would have yielded predictable results and resulted in an improved system, namely, a system that would calculate cumulated traffic flow using linear constraints technique to obtain a provably good solution to this linear program utilizing e-approximation methods proven to be computationally effective in practice [0048], .

Regarding claim 12, a method of calculating traffic values or intervals in a communications network, the communications network comprising a plurality of nodes, the nodes being connected to one another by links [routers, connected by data link, 0033], the method comprising:

calculating the cumulated traffic flow between a first and a second of said nodes in a traffic flow model using linear constraints;

said traffic flow model being based on

(a) traffic data measurements through said nodes and links as input data (e.g., a link state routing device of a node in a network composed of a plurality of nodes and links, col. 2, lines 51-65, Iwata);

(b) a plurality of constraints (e.g., "imposing a packet filtering rule", [0046], MacIsaac) describing network topology and behaviour [0076], MacIsaac; and

correcting said input data if inconsistencies are detected, wherein correcting comprises using said traffic data measurements (e.g., since the precalculated path information fails to reflect the latest path information, there is a high probability of connection setup failure, col. 2, lines 15-35, Iwata) and said constraints (e.g., [0052], Fielscher).

MacIsaac teaches a method of calculating traffic values or intervals in a communications network, the network comprising a plurality of nodes being interconnected by links [routers, connected by data link, 0033], calculating the cumulated traffic flow between a first and a second of said nodes in a traffic flow model [0046], traffic data measurements through said nodes and links as input data [0040 and 0046]; and a plurality of constraints describing the network topology and behaviour [0076].

Fielscher teaches network traffic information is calculated using linear constraints in a traffic flow model [linear program [constraint] may be used to model how to route traffic in the Internet] [0052].

Regarding claim 18, this claim comprises a computer readable storage medium program for performing the method which is substantially the same steps discussed by each respective step in the method of claim 1, thereby same rationale of rejection is applicable, except for code for obtaining traffic data (e.g., the computer system-readable code means is operable, in conjunction with a device such as network controller **160**, to carry out all or some of the steps, [0044], Fielscher)

comprising traffic measurement for said links obtained from one or more of the nodes in the network (e.g., a link state routing device of a node in a network composed of a plurality of nodes and links, col. 2, lines 51-65, Iwata)

said network data comprising end-to-end paths in the network (e.g., first communication link **6** connected to client computer **4** and a second communication link **7** connected to some other networked device in the network 1, [0040] and [0018], MacIsaac); and

code for automatically selecting (e.g., [0024], Fielscher) promising candidate (e.g., routing a demand through the network for the selected commodity, claim 8, Fielscher) for a network modification by calculating a cumulated flow using traffic and network data (e.g., statistical information about the network traffic, [0046], MacIsaac), wherein the candidates are selected (e.g., first link [i.e., primary] and second link [i.e., second], [0040], MacIsaac) according to predefined selection criteria (e.g., initializing primary and second flows for each link to at least one predetermined value, claim 8 and claim 20, Fielscher).

Regarding claim 20, wherein said constraints comprise: for each route, traffic coming in is equal to traffic going out (e.g., [0031-0032], Fielscher); and

for each link between an interface j of a router i and an interface l of a router k, outgoing traffic data on the interface j from the router i is equal to incoming traffic data on the interface l of the router k (e.g., objective function is considered here: letting f(e) be the total flow on link e, the total cost of the flow...is minimized, [0123-0128], Fielscher).

Claim Interpretation

7. The claims and only the claims form the metes and bounds of the invention. "Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. In re Morris, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997) . Moreover, limitations appearing in the specification but not recited in the claim are not read into the claim. In re Prater, 415 F.2d, 1393, 1404-05, 162 USPQ 541,550-551 (CCPA 1969)" (MPEP p 2100-8, c 2,145-48; p 2100-9, c 1,1 1-4).

8. The Examiner has full latitude to interpret each claim in the broadest reasonable sense. The Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.

EXAMINER'S NOTE

9. Examiner has cited particular columns and line numbers or paragraph numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. The entire reference is considered to provide disclosure relating to the claimed invention.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARK O. AFOLABI whose telephone number is (571) 270-5627. The examiner can normally be reached on Monday-Friday between (8:00 am to 5:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NATHAN FLYNN can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN FLYNN/

Supervisory Patent Examiner, Art Unit 2454

/M.O.A/

MARK O. AFOLABI

Examiner AU 2454